

Sequence Listing



<110> Lee, Chichang; ~~Wang~~ Celia; Moore, Gordon; Chi, Xiamei

<120> Methods and Compositions for Enhanced Protein Expression and/or Growth of Cultured Cells Using Co-Transcription of a Bcl2 Encoding Nucleic Acid

<130> CEN0269

<140> 10,003,632

<141> 11-02-2001

<160> 14

<170> PatentIn Ver 3.1

<210> 1

<211> 239

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
20 25 30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp
50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
65 70 75 80

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala
85 90 95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe
100 105 110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro

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OFFICE OF PATENTS

195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala
 210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Ser His Lys
 225 230 235

<210> 2
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 <212> PRT
 <213> Homo sapiens

<400> 2
 Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
 1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
 20 25 30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
 35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp
 50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
 65 70 75 80

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala
 85 90 95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe
 100 105 110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
 115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
 130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
 145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
 165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
 180 185 190

Gly Gly Trp Val Gly Ala Ser Gly Asp Val Ser Leu Gly
 195 200 205

<210> 3
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 <212> PRT
 <213> Homo sapiens

<400> 3

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
20 25 30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp
50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
65 70 75 80

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala
85 90 95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe
100 105 110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
145 150 155

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
165 170 175 180

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro
195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala
210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Ser His Lys
225 230 235

<210> 4

<211> 21

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<213> Homo sapiens

<400> 4

Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Val Arg Val Val Ala Leu
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Phe Tyr Phe Ala Ser
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<210> 5
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<212> PRT
<213> Homo sapiens

<400> 5
Met Asp Glu Asp Val Leu Pro Gly Glu Val Leu Ala Ile Glu Gly Ile
1 5 10 15
Phe Met Ala Cys Gly Leu Asn Glu Pro Glu Tyr Leu Tyr His Pro Leu
20 25 30
Leu Ser Pro Ile Lys Leu Tyr Ile Thr Gly Leu Met Arg Asp Lys Glu
35 40 45
Ser Leu Phe Glu Ala Met Leu Ala Asn Val Arg Phe His Ser Thr Thr
50 55 60
Gly Ile Asn Gln Leu Gly Leu Ser Met Leu Gln Val Ser Gly Asp Gly
65 70 75 180
Asn Met Asn Trp Gly Arg Ala Leu Ala Ile Leu Thr Phe Gly Ser Phe
85 90 95
Val Ala Gln Lys Leu Ser Asn Glu Pro His Leu Arg Asp Phe Ala Leu
100 105 110
Ala Val Leu Pro Val Tyr Ala Tyr Glu Ala Ile Gly Pro Gln Trp Phe
115 120 125
Arg Ala Arg Gly Gly Trp Arg Gly Leu Lys Ala Tyr Cys Thr Gln Val
130 135 140
Leu Thr Arg Arg Arg Gly Arg Arg Met Thr Ala Leu Leu Gly Ser Ile
145 150 155 160
Ala Leu Leu Ala Thr Ile Leu Ala Ala Val Ala Met Ser Arg Arg
165 170 175

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<213> Homo sapiens

<400> 6
Met Ala Ser Gly Gln Gly Pro Gly Pro Pro Arg Gln Glu Cys Gly Glu
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Pro Ala Leu Pro Ser Ala Ser Glu Glu Gln Val Ala Gln Asp Thr Glu
20 25 30
Glu Val Phe Arg Ser Tyr Val Phe Tyr Arg His Gln Gln Glu Gln Glu
35 40 45
Ala Glu Gly Val Ala Ala Pro Ala Asp Pro Glu Met Val Thr Leu Pro
50 55 60
Leu Gln Pro Ser Ser Thr Met Gly Gln Val Gly Arg Gln Leu Ala Ile
65 70 75 80

Ile Gly Asp Asp Ile Asn Arg Arg Tyr Asp Ser Glu Phe Gln Thr Met
85 90 95

Leu Gln His Leu Gln Pro Thr Ala Glu Asn Ala Tyr Glu Tyr Phe Thr
100 105 110

Lys Ile Ala Thr Ser Leu Phe Glu Ser Gly Ile Asn Trp Gly Arg Val
115 120 125

Val Ala Leu Leu Gly Phe Gly Tyr Arg Leu Ala Leu His Val Tyr Gln
130 135 140

His Gly Leu Thr Gly Phe Leu Gly Gln Val Thr Arg Phe Val Val Asp
145 150 155 160

Phe Met Leu His His Cys Ile Ala Arg Trp Ile Ala Gln Arg Gly Gly
165 170 175

Trp Val Ala Ala Leu Asn Leu Gly Asn Gly Pro Ile Leu Asn Val Leu
180 185 190

Val Val Leu Gly Val Val Leu Leu Gly Gln Phe Val Val Arg Arg Phe
195 200 205

Phe Lys Ser
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<210> 7

<211> 170

<212> PRT

<213> Homo sapiens

<400> 7

Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys
1 5 10 15

Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu
20 25 30

Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro
35 40 45

Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala
50 55 60

Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val
65 70 75 80

Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu
85 90 95

Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu
100 105 110

His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Asp Thr Phe
115 120 125

Val Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln
130 135 140

Glu Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val
145 150 155 160

Val Leu Leu Gly Ser Leu Phe Ser Arg Lys
165 170

<210> 8

<211> 160

<212> PRT

<213> Homo sapiens

<400> 8

Met Ser Glu Val Arg Pro Leu Ser Arg Asp Ile Leu Met Glu Thr Leu
1 5 10 15

Leu Tyr Glu Gln Leu Leu Glu Pro Pro Thr Met Glu Val Leu Gly Met
20 25 30

Thr Asp Ser Glu Glu Asp Leu Asp Pro Met Glu Asp Phe Asp Ser Leu
35 40 45

Glu Cys Met Glu Gly Ser Asp Ala Leu Ala Leu Arg Leu Ala Cys Ile
50 55 60

Gly Asp Glu Met Asp Val Ser Leu Arg Ala Pro Arg Leu Ala Gln Leu
65 70 75 80

Ser Glu Val Ala Met His Ser Leu Gly Leu Ala Phe Ile Tyr Asp Gln
85 90 95

Thr Glu Asp Ile Arg Asp Val Leu Arg Ser Phe Met Asp Gly Phe Thr
100 105 110

Thr Leu Lys Glu Asn Ile Met Arg Phe Trp Arg Ser Pro Asn Pro Gly
115 120 125

Ser Trp Val Ser Cys Glu Gln Val Leu Leu Ala Leu Leu Leu Leu Leu
130 135 140

Ala Leu Leu Leu Pro Leu Leu Ser Gly Gly Leu His Leu Leu Leu Lys
145 150 155 160

<210> 9

<211> 218

<212> PRT

<213> Homo sapiens

<400> 9

Met Asp Gly Ser Gly Glu Gln Pro Arg Gly Gly Gly Pro Thr Ser Ser
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Glu Gln Ile Met Lys Thr Gly Ala Leu Leu Gln Gly Phe Ile Gln
20 25 30

Asp Arg Ala Gly Arg Met Gly Gly Glu Ala Pro Glu Leu Ala Leu Asp
35 40 45

Pro Val Pro Gln Asp Ala Ser Thr Lys Lys Leu Ser Glu Cys Leu Lys
 50 55 60
 Arg Ile Gly Asp Glu Leu Asp Ser Asn Met Glu Leu Gln Arg Met Ile
 65 70 75 80
 Ala Ala Val Asp Thr Asp Ser Pro Arg Glu Val Phe Phe Arg Val Ala
 85 90 95
 Ala Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Gly Arg Val Val Ala
 100 105 110
 Leu Phe Tyr Phe Ala Ser Lys Leu Val Leu Lys Ala Leu Cys Thr Lys
 115 120 125
 Val Pro Glu Leu Ile Arg Thr Ile Met Gly Trp Thr Leu Asp Phe Leu
 130 135 140
 Arg Glu Arg Leu Leu Gly Trp Ile Gln Asp Gln Gly Gly Trp Val Arg
 145 150 155 160
 Leu Leu Lys Pro Pro His Pro His His Arg Ala Leu Thr Thr Ala Pro
 165 170 175
 Ala Pro Pro Ser Leu Pro Pro Ala Thr Pro Leu Gly Pro Trp Ala Phe
 180 185 190
 Trp Ser Arg Ser Gln Trp Cys Pro Leu Pro Ile Phe Arg Ser Ser Asp
 195 200 205
 Val Val Tyr Asn Ala Phe Ser Leu Arg Val
 210 215

<210> 10
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 <213> Homo sapiens

<400> 10
 Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
 1 5 10 15
 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
 20 25 30
 Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
 35 40 45
 Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp
 50 55 60
 Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
 65 70 75 80
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr
 85 90 95
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe

100	105	110
Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly		
115	120	125
Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp		
130	135	140
Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu		
145	150	155
Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp		
165	170	175
Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn		
180	185	190
Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro		
195	200	205
Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala		
210	215	220
Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys		
225	230	235
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<211> 205		
<212> PRT		
<213> Homo sapiens		
<400> 11		
Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met		
1	5	10
Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala		
20	25	30
Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile		
35	40	45
Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp		
50	55	60
Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala		
65	70	75
Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Ala		
85	90	95
Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Gly Asp Phe		
100	105	110
Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly		
115	120	125
Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp		
130	135	140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
180 185 190

Gly Gly Trp Val Gly Ala Ser Gly Asp Val Ser Leu Gly
195 200 205

<210> 12

<211> 245

<212> PRT

<213> Homo sapiens

<400> 12

Leu Ala Gln Arg Gly Gly Ala Arg Arg Pro Arg Gly Asp Arg Glu Arg
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Leu Gly Ser Arg Leu Arg Ala Leu Arg Pro Gly Arg Glu Pro Arg Gln
20 25 30

Ser Glu Pro Pro Ala Gln Arg Gly Pro Pro Pro Ser Arg Arg Pro Pro
35 40 45

Ala Arg Ser Thr Ala Ser Gly His Asp Arg Pro Thr Arg Gly Ala Ala
50 55 60

Ala Gly Ala Arg Arg Pro Arg Met Lys Lys Lys Thr Arg Arg Arg Ser
65 70 75 80

Thr Arg Ser Glu Glu Leu Thr Arg Ser Glu Glu Leu Thr Leu Ser Glu
85 90 95

Glu Ala Thr Trp Ser Glu Glu Ala Thr Gln Ser Glu Glu Ala Thr Gln
100 105 110

Gly Glu Glu Met Asn Arg Ser Gln Glu Val Thr Arg Asp Glu Glu Ser
115 120 125

Thr Arg Ser Glu Glu Val Thr Arg Glu Glu Met Ala Ala Ala Gly Leu
130 135 140

Thr Val Thr Val Thr His Ser Asn Glu Lys His Asp Leu His Val Thr
145 150 155 160

Ser Gln Gln Gly Ser Ser Glu Pro Val Val Gln Asp Leu Ala Gln Val
165 170 175

Val Glu Glu Val Ile Gly Val Pro Gln Ser Phe Gln Lys Leu Ile Phe
180 185 190

Lys Gly Lys Ser Leu Lys Glu Met Glu Thr Pro Leu Ser Ala Leu Gly
195 200 205

Ile Gln Asp Gly Cys Arg Val Met Leu Ile Gly Lys Lys Asn Ser Pro
210 215 220

Gln Glu Glu Val Glu Leu Lys Lys Leu Lys His Leu Glu Lys Ser Val
225 230 235 240

Glu Lys Ile Ala Asp Gln Leu Glu Glu Leu Asn Lys Glu Leu Thr Gly
245 250 255

Ile Gln Gln Gly Phe Leu Pro Lys Asp Leu Gln Ala Glu Ala Leu Cys
260 265 270

Lys Leu Asp Arg Arg Val Lys Ala Thr Ile Glu Gln Phe Met Lys Ile
275 280 285

Leu Glu Glu Ile Asp Thr Leu Ile Leu Pro Glu Asn Phe Lys Asp Ser
290 295 300

Arg Leu Lys Arg Lys Gly Leu Val Lys Lys Val Gln Ala Phe Leu Ala
305 310 315 320

Glu Cys Asp Thr Val Glu Gln Asn Ile Cys Gln Glu Thr Glu Arg Leu
325 330 335

Gln Ser Thr Asn Phe Ala Leu Ala Glu
340 345

<210> 13

<211> 239

<212> PRT

<213> Homo sapiens

<400> 13

Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met
1 5 10 15

Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
20 25 30

Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
35 40 45

Phe Ser Ser Gln Pro Gly His Thr Pro His Pro Ala Ala Ser Arg Asp
50 55 60

Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
65 70 75 80

Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr
85 90 95

Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe
100 105 110

Ala Glu Met Ser Ser Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro
195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala
210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys
225 230 235

<210> 14
<211> 195
<212> PRT
<213> Homo sapiens
<400> 14

Met Asp Cys Glu Val Asn Asn Gly Ser Ser Leu Arg Asp Glu Cys Ile
1 5 10 15

Thr Asn Leu Leu Val Phe Gly Phe Leu Gln Ser Cys Ser Asp Asn Ser
20 25 30

Phe Arg Arg Glu Leu Asp Ala Leu Gly His Glu Leu Pro Val Leu Ala
35 40 45

Pro Gln Trp Glu Gly Tyr Asp Glu Leu Gln Thr Asp Gly Asn Arg Ser
50 55 60

Ser His Ser Arg Leu Gly Arg Ile Glu Ala Asp Ser Glu Ser Gln Glu
65 70 75 80

Asp Ile Ile Arg Asn Ile Ala Arg His Leu Ala Gln Val Gly Asp Ser
85 90 95

Met Asp Arg Ser Ile Pro Pro Gly Leu Val Asn Gly Leu Ala Leu Gln
100 105 110

Leu Arg Asn Thr Ser Arg Ser Glu Glu Asp Arg Asn Arg Asp Leu Ala
115 120 125

Thr Ala Leu Glu Gln Leu Leu Gln Ala Tyr Pro Arg Asp Met Glu Lys
130 135 140

Glu Lys Thr Met Leu Val Leu Ala Leu Leu Leu Ala Lys Lys Val Ala
145 150 155 160

Ser His Thr Pro Ser Leu Leu Arg Asp Val Phe His Thr Thr Val Asn
165 170 175

Phe Ile Asn Gln Asn Leu Arg Thr Tyr Val Arg Ser Leu Ala Arg Asn

180

185

190

Gly Met Asp
195

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